



FIRE PROTECTION WINDOW CURTAIN

Type: **MARC-Ok(st) EI60**

with VIC gravity-assisted operation (spring-loaded winding gear)

*THANK YOU FOR YOUR TRUST AND FOR PURCHASING THE PRODUCTS
FROM „MAŁKOWSKI-MARTECH” S.A.*



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MAŁKOWSKI MARTECH Czołowo, ul. Leśna 57, 62-035 Kórnik tel.: +48 61 222 75 00 fax: +48 61 222 75 01 email: biuro@malkowski.pl, www.malkowski.pl	FIRE PROTECTION WINDOW CURTAIN type: MARC-Ok(st) EI60	Ref. no.: ISOiK_Ok-4
	INSTRUCTIONS FOR USE, OPERATION AND MAINTENANCE	Revision: 03/2021

1. INTRODUCTION

This Instructions Manual for Type MARC-Ok(st) EI60 fire protection window curtain (henceforth the 'fire protection curtain' or the 'product') features the data and guidance for the fire protection curtain owner/user required to understand the operating principle, application, operation, and maintenance of the fire protection curtain).

To ensure long-term, safe use of the product, the user and operating personnel shall fully understand and comply with this Manual.

The use of the product, including its operation, maintenance, servicing, periodic inspection, parts replacement, and repairs shall conform to this Manual.

Keep the Manual and other technical documentation appended to it safe and available to the operators and service technicians.

We reserve the right to continuous verification of the Manual contents and their adaptation to the state of the art. We hope the user understands that the Manual contents can be modified without prior notice. Some of the figures and narrative of this Manual may vary from the actual product, and if so, it is due to continuous improvement necessary due to changes in regulations of law and similar reasons; these variations do not affect the recommendations for use applicable to the product.

If this Manual is lost or damaged, contact our Customer Service and order the same version of the document.

CAUTION!

Failure in compliance with the recommendations and guidelines contained in this Manual will release the manufacturer from all liability and warranty obligations.

The servicing intended to be done by the service technicians and the user is specified further in this Manual. Only the manufacturer's authorized service may attempt assembly, installation, adjustment, parts replacement, repairs, and troubleshooting of this product.

This Manual applies to the standard accessories of the fire protection curtain; the application of optional accessories, if any, is specified in the sales contract for the fire protection curtain.

The fire protection curtain shall be used according to the engineering design developed for the intended installation location, and with consideration of the following:

- The prevailing construction and engineering standards and regulations, of which the particular ones apply:
 - a) Regulation of the European Parliament and of the Council (EU) No. 305/2011 of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC (OJ L. EU L88 of 04.04.2011, as amended);
 - b) Polish Construction Products Act of 16 April 2004 (Dz.U. 2020.215);
 - c) Polish Building Code Act of 7 July 1994 (Dz.U. 2020.1333);
 - d) Polish Act of 13 April 2016 on the Conformity System and Market Surveillance (Dz.U. 2019.554);
 - e) Polish Fire Protection Act of 24 August 1991 (Dz.U. 2020.961/1610);
 - f) Polish Regulation of the Minister of Infrastructure and Construction dated 17 November 2016 and concerning the Practice of Declaration of Performance for and Construction Mark Labelling of Construction Products (Dz.U. 2016.1966);
 - g) Polish Regulation of the Minister of the Interior and Administration dated 7 June 2010 and concerning the Fire Protection of Buildings, Structures, and Land (Dz.U. 2010.109.719, as amended);
 - h) Polish Regulation of the Minister of Infrastructure dated 12 April 2002 and concerning the Technical Requirements for Buildings and Locations Thereof (Dz.U. 2019.1065);
 - i) EN 16034:2014-11 (Harmonised standard), Pedestrian doorsets, industrial, commercial, garage doors and openable windows – Product standard, performance characteristics – Fire resisting and/or smoke control characteristics;
 - j) PN-EN 13501-2:2016-07, Fire classification of construction products and building elements – Part 2:



- Classification using data from fire resistance tests, excluding ventilation services;
- k) EN 13241+A2:2016-10 (Harmonised standard), Industrial, commercial, garage doors and gates – Product standard, performance characteristics;
 - l) PN-EN 12635+A1:2010, Industrial, commercial and garage doors and gates – Installation and use;
 - m) PN-EN 12424:2002 Industrial, commercial and garage doors and gates – Resistance to wind load – Classification;
- The Declaration of Performance;
 - These Instructions for Use, Operation and Maintenance.

Pursuant to the EN standard (i) and the Regulation (f), the fire protection curtain is a construction product eligible for System 1 of Assessment and Verification of Constancy of Performance. Based on the Regulation (a), the manufacturer who markets a construction product is required to issue its Declaration of Performance (DoP) and apply a legible CE marking label to the product.

CAUTION!

A copy of the Declaration of Performance and the Warranty Certificate are provided by the manufacturer to the user after the acceptance of the installation/assembly of the fire protection curtain, in accordance with the sales contract (and/or the quotation).

A copy of the Declaration of Performance and the Warranty Certificate for the fire protection curtain is an integral part of this Manual and shown as its Appendices, ref. Section 11 APPENDICES.

The CE marking of the fire protection curtain is placed on its nameplate, ref. Section 10 IDENTIFICATION.

The valid list of authorized providers of product installation, service inspections, and maintenance (complete with assessment and certification of proper performance of these services) is available on the official website of the fire protection curtain manufacturer (www.malkowski.pl).

2. APPLICATION SCOPE AND PREREQUISITES

2.1 INTENDED USE

Type MARC-Ok(st) EI60 fire protection curtain is a vertical, moving fire partition intended as the closure of a passageway between fire partitioned zones inside of industrial buildings, warehouse rooms, technical access floors in office buildings, hospitals, and other public buildings. It can also be used as a window curtain installed on the indoor or outdoor of window and door openings, designed to protect the interior of the listed types of buildings.

Type MARC-Ok(st) fire protection curtain in the basic version is manufactured in the declared use category C0 (with the number of cycles 1 to 499 per EN 16034:2014-11) and wind load resistance class 1 (per to PN-EN 12424:2002) or **2** in the case of a curtain on the outside of the building – provided that the manufacturer has been notified in writing of this intended use.

On buyer's request, the MARC-Ok(st) EI60 fire protection curtain can be manufactured in the declared use category **1** (500 to 9,999 cycles) or **2** (10,000 to 49,999 cycles).

2.2 NON-INTENDED USE

Type MARC-Ok(st) EI60 fire protection curtain is not intended for the following applications:

- In Ex-zones (explosion hazard areas), unless qualified as intended for the application following suitable modifications by the manufacturer;
- In environmental conditions with presence of salinity, salts, acids, alkali, and/or other aggressive chemical (including cement and lime) which trigger corrosion (the maximum permitted relative humidity is 80% for this product);
- When exposed to strong electromagnetic fields (> 0.1 T);
- In areas with wind exposure with a force higher than the wind load resistance class stated on the nameplate and a copy of the Declaration of Performance.



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CAUTION!

The PN-EN 12424:2002 wind load resistance has been determined for the closed product. Operation of the product in high winds can be hazardous!

Never attempt to:

- have the fire protection curtain assembled by a contractor who has not been authorized by the product manufacturer;
- repair, troubleshoot, improve, alter, modify, or replace or retrofit components or parts outside of the specification limits shown in this Manual and/or without a prior written authorization from the fire protection curtain manufacturer (ref. the manufacturer's authorization matrix in Section 6 TECHNICAL SPECIFICATION);
- install any parts or components which are non-genuine or non-original or not specified and/or authorized by the fire protection curtain manufacturer;
- operate the fire protection curtain which is defective, out of order or partially or wholly incompatible with the specified properties or intended use (due to damage from fire, a building collapse, etc.);
- operate the fire protection curtain without the required operator's inspections, periodic service inspections, and/or maintenance done as specified in this Manual (ref. Section 8 INSPECTION, MAINTENANCE, AND REPAIRS) or as specified in the custom provision of the sales contract concluded between the user and the manufacturer of the fire protection curtain;
- operate the fire protection curtain with mechanical damage or other defects caused by misuse, especially if it has been stopped in an emergency and the reason has not been cleared;
- operate the fire protection curtain if it or any of its components have been found to work abnormally and the relevant supervisor, maintenance team and the manufacturer's technical service have not been notified;
- operate the fire protection curtain with its nameplate defaced or removed;
- service or repair the fire protection curtain when its components are in motion;
- wash or clean the fire door with formulas that are corrosive and/or based on any acid or solvent, or pressure clean with any liquid (see Section 8.4 CLEANING AND LUBRICATION).

Failure to comply with the foregoing restrictions will have the user lose all liability and warranty obligations of the manufacturer towards the former, including loss of the declared fire resistance and the DoP issued by the manufacturer.

CAUTION!

The manufacturer shall be released from their liability and warranty obligations:

- if the product has been installed by a contractor not authorised by the manufacturer;
- for all natural, whether partial or complete, wear and tear resulting from the characteristics or intended use of the fire protection curtain (which includes exposure to fire);
- if the user or any third party alters, modifies, or replaces components or structural features of the fire protection curtain without coordination and prior written authorisation of the manufacturer;
- for misuse or failure in routine maintenance of the fire protection curtain or its components as required by this Manual;
- for failure in the periodic inspections required in this Manual or any binding, custom agreement with the manufacturer or its authorized technical service, if the failure has caused damage and other defects (including the defacement or removal of the nameplate).

In the foregoing circumstances the manufacturer does not warrant that the declared fire resistance of the product will be maintained any longer.

To ensure reliable operation and compliance with the warranty terms and conditions, please contact MAŁKOWSKI-MARTECH S.A. or its commercial partner for product training. The purpose of the training is



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to provide the necessary information about proper use and, among others, the requirements for operating personnel.

2.3 OHS RECOMMENDATIONS

The operation of the fire protection curtain requires compliance with the prevailing general occupational health and safety laws, including legal prerequisites of fire protection and timely inspections, servicing, maintenance, parts replacement, and repairs which are specified in the requirements. Do not operate the fire protection curtain if it has been stopped in an emergency until the root cause is cleared.

Follow the prevailing regulations of law for waste generation control and proper disposal during all work on the fire protection curtain. Special caution is required that during cleaning/washing, maintenance, replacement of parts or repairs of the fire protection curtain no harmful substances are released into the soil or sewers, like lubricants, solvent-borne cleaning agents, etc. These substances must be collected, contained and shipped for legal disposal in suitable containers.

2.4 SERVICE PERSONNEL REQUIREMENTS

The servicing of the fire protection curtain requires no professional license. The fire protection curtain shall be operated and serviced by an operator (e.g. a maintenance technician) designated by the fire protection curtain user. The designated operator requires operating training from the fire protection curtain manufacturer's representative or the manufacturer's authorized installation contractor; once completed, the operating training must be certified as such in writing.

The user shall ensure that the operating personnel is and remains trained in occupational health and safety, including the possible risks of this product, the job safety instructions, this Manual, and all instructions attached to this document.

3. PACKAGING, STORAGE, AND TRANSPORT

Depending on the sales contract/quotation provisions agreed to with the manufacturer, the fire protection curtain can be collected from the manufacturer's warehouse or shipped and delivered by the manufacturer to the installation side against a written proof of acceptance of the product quantity and quality on the Goods Issue Note.


The fire protection curtain is delivered in assemblies and components to be assembled and installed at the user's site. Each assembly and component is separately protected against mechanical damage for the duration of shipping as follows:

- The curtain sheet is wound on the shaft and the assembly is wrapped in stretch film and on a pallet with mineral wool or EPS spacers;
- The guide rails, fascias, etc. parts are placed on a pallet with spacers made of mineral wool or EPS;
- Each of these palets (or load unit) is wrapped in film and bound with polyester straps over square timber pieces for protection of the product's edges;
- small accessory items, like fasteners, etc. are packed in a separate cardboard box;
- each delivery packaging is labelled with the packing list of the assemblies and components, showing the customer's purchase order, the assembly number, the fire protection curtain type, and the DoP reference number.

Transport, storage, and assembly/installation of the fire protection curtain are regulated as follows:

- The assemblies, components, and single parts of the fire protection curtain must be properly secured in transport (with lashing, straps, spacers, etc.);
- Following the unloading from delivery and for the duration of storage, store all parts of the fire protection curtain in a sheltered room, away from sources of damage, dirt, and the elements (like snow and rain);



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- Do not step, walk, or drive over any assembly, component, or part of the fire protection curtain; do not place any loads, tools, or any chemicals on these items; do not lead on these items; do not attempt anything unspecified here which might contribute to damage and reduction of value/quality of the fire protection curtain items.

4. ASSEMBLY AND INSTALLATION

The electrical and mechanical installation and assembly of the MARC-OK(st) fire protection window curtain shall only be done by trained personnel of the manufacturer or its authorized installation contractors. Fire protection curtain pre-installation/assembly procedure:

- Before attempting the work, inspect all delivery items for incorrect quantity and damage during transport or storage;
- Verify conformity of the installation conditions against the purchase order / sales contract drawing;

Install the fire protection curtain in compliance with the INSTALLATION INSTRUCTIONS (ref. Section 11 APPENDICES), and follow with the installation work inspection and functional testing.

The acceptance of the installed fire protection curtain is to be done in witness of the buyer's authorized and the manufacturer's authorized representatives (it can be witnessed on behalf of the manufacturer, by the authorized installation contractor) who will certify the acceptance in the Periodic Inspection and Maintenance Log (appended to this Manual) or in a separate installation acceptance certificate.

CAUTION!

For proper handling, lifting, and fastening of the fire protection curtain structure, ensure proper OHS conditions and the work equipment required for the tasks, like ladders of suitable height, fall arrest harnesses, lifelines and other gear, e.g. slings, lifting beams, a hoist, or a MEWP with a lift capacity and outreach sufficient for the weight and installation height of the product's structure. The sales contract specifies the party required to secure the work equipment for the assembly, installation, and periodic inspections/maintenance processes.



5. OPERATING PRINCIPLE OF THE MARC-Ok(st) FIRE PROTECTION WINDOW CURTAIN

The primary function of the fire protection curtain is to automatically operate to technically close (unwind and descend) whenever a fire hazard is detected. The closing operation is triggered by a thermal fusible trip.

The thermal fusible trip is installed between the shaft box and the curtain sheet. In the event of a fire which increases the temperature near the installation place of the product to 68°C (or 94°C or 140°C, depending on the installed thermal fusible trip type), the trip is triggered and causes the fire protection curtain to unwind and close the opening. While unwinding, the movement of the fire protection curtain tensions the spring installed inside of the winding shaft. As it is tensioned, the spring gradually slows the descent of the fire protection curtain to prevent the counterweight bar to crash with the window sill/ground.

By grasping the counterweight bar and slowly lifting the unwound curtain sheet up, the spring-loaded winding gear is released to wind the curtain sheet back onto the shaft (which is facilitated by the accumulated tension of the spring and requires little manual effort).

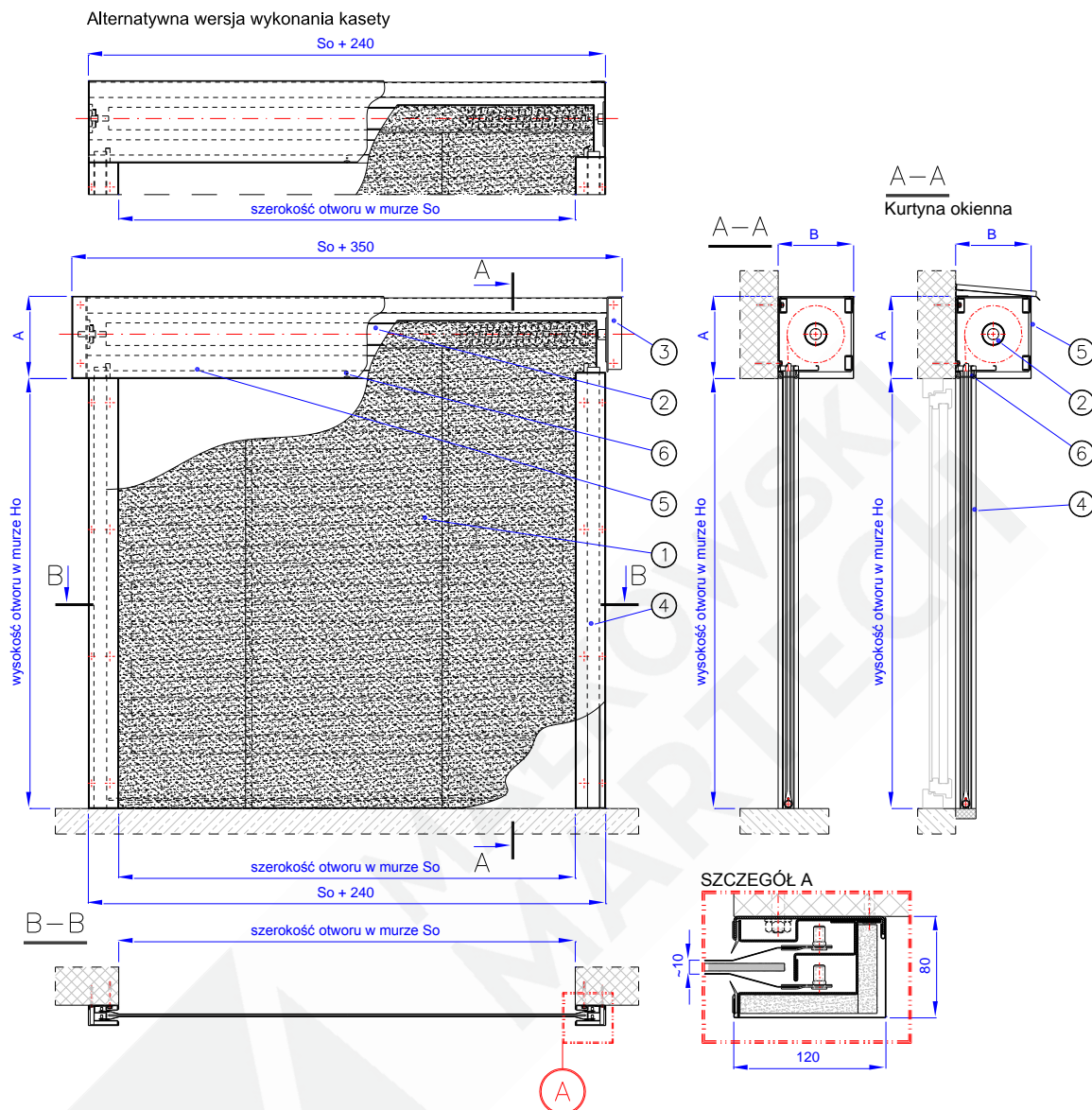


Fig. 1 – Thermal fusible trip

6. TECHNICAL SPECIFICATIONS

Specification	Value	Notes
Fire resistance class	EI ₁₄₅ , EI ₂₆₀ , EW ₁₂₀	-
Closing speed	< 0.15 m/s	-
Operation (manual / powered)		Operation only by blowing of the thermal fusible trip and the spring-loaded winding gear
Curtain sheet colour	Similar to RAL 7035	-
Shaft box and guide rail fascia colour	Galvanized / RAL 7035, 9002, 9010	Any in the RAL palette on request




Fig. 2 – Type MARC-Ok(st) EI60 fire protection window curtain

1 – Curtain sheet; 2 – Winding shaft; 3 – Shaft bracket; 4 – Guide rail; 5 – Fascia cover assy, 6 – Thermal fusible trip

Alternatywna wersja wykonania kasety	Alternative shaft box version
Kurtyna okienna	Window curtain
szerokość otworu w murze So	Wall opening clear width, So
wysokość otworu w murze Ho	Wall opening clear height, Ho
Szczegół A	Detail A

List of components for type MARC-Ok(st) EI60 fire protection window curtain

#	Designation	Quantity	Drawing no./ Part no. / Standard
1	Curtain sheet	1	6 – MARC-Ok(st)60-01.01.00
2	Winding shaft	1	7 – MARC-Ok(st)60-01.02.00
3	Shaft bracket	2	8 – MARC-Ok(st)60-01.03.00
4	Guide rail	2	9 – MARC-Ok(st)60-01.04.00
5	Fascia cover assy (shaft box)	1	10 – MARC-Ok(st)60-01.05.00



6	Thermal fusible trip	1	Elsie, type A, B, or C
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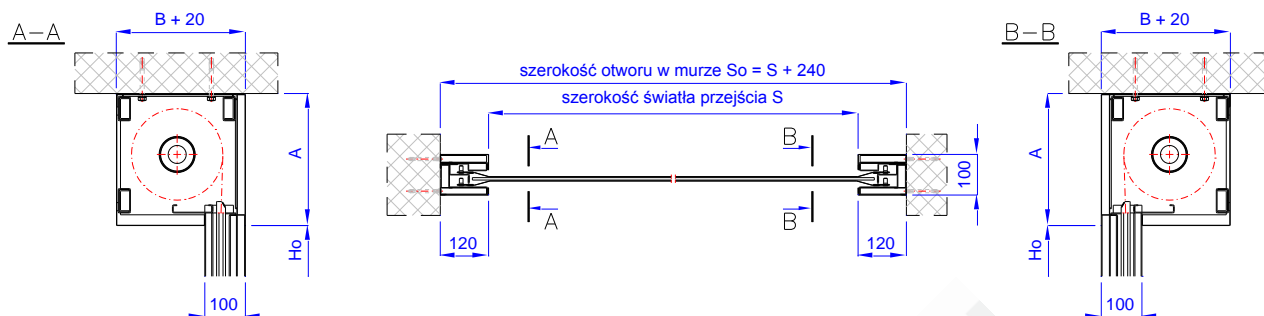


Fig. 3 – Type MARC-Ok(st) EI60 fire protection window curtain
– corridor-closure/recessed installation (between parallel walls)

Szerokość otworu w murze $S_o = S + 240$	Wall opening clear width, $S_o = S + 240$
Szerokość światła przejścia S	Clear passage width, S

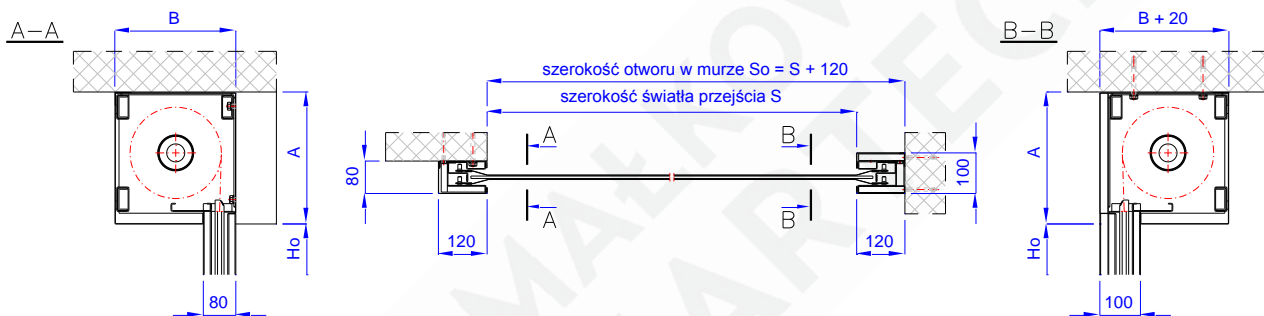


Fig. 4 – Type MARC-Ok(st) EI60 fire protection window curtain
– mixed installation

Szerokość otworu w murze $S_o = S + 120$	Wall opening clear width, $S_o = S + 120$
Szerokość światła przejścia S	Clear passage width, S

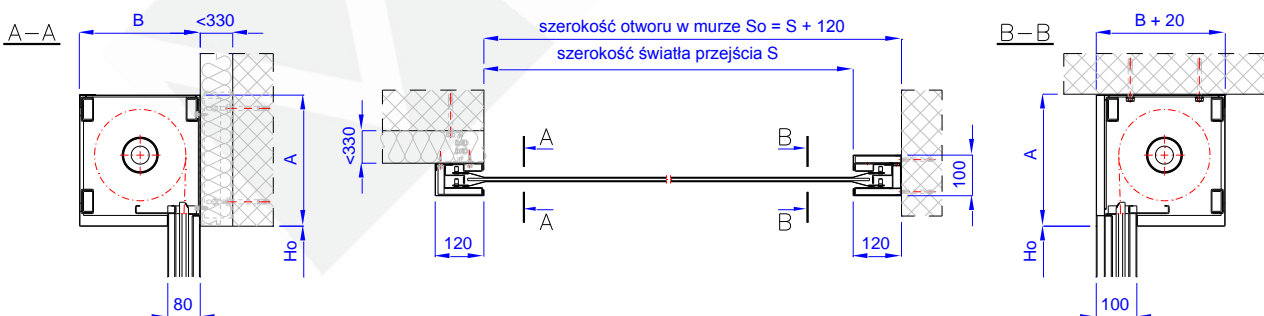


Fig. 5 – Type MARC-Ok(st) EI60 fire protection window curtain
– mixed installation, single-sided on spacers

Szerokość otworu w murze $S_o = S + 120$	Wall opening clear width, $S_o = S + 120$
Szerokość światła przejścia S	Clear passage width, S



LIST OF ANCHORING FASTENERS FOR THE SHAFT BRACKETS

NOTE: 1. The standard set of fasteners supplied with the product includes the hardware for installation on concrete (C20/25) and reinforced concrete walls.

2. It is possible to use different fasteners provided if they are marketed with the CE marking or the Polish Construction Mark "B" and have the same or better strength and the same intended use.

#	Anchoring fasteners	Notes
A. REGULAR/PRESTRESSED CONCETE HOLLOW CORE SLABS		
A.1	Hollow core slab anchor Fischer FHY; Hilti HKH	- the size and type are specified for the transmitted loads;
A.2	Sleeved anchor e.g. Fischer EA II; Hilti HKD	
B. WALLS, FLOORS, AND BEAMS OF SOLID/RF CONCRETE		
B.1	Bolt anchor e.g. MKT BZ; Fischer FAZ II; Hilti HST3	- the size and anchoring depth are specified for the transmitted loads;
B.2	Sleeved anchor e.g. Fischer EA II; Hilti HKD	
B.3	Threaded anchor e.g. Fischer FBS II; Hilti HUS HR/CR	
B.4	Chemical anchoring with threaded bars e.g. MKT VM Multi-plus; Fischer FIS SB	- Min. bar size M8 (DIN 976), min. strength class 8.8 (PN-EN ISO 898-1)
C. MASONRY WALLS OF CELLULAR CONCRETE UNITS (e.g. Ytong, Solbet, or Termalica)		
C.1	Threaded anchor e.g. Fischer FBS II; Hilti HUS HR/CR	- The size and anchoring depth are specified for the transmitted loads;
C.2	Fischer FPX M8-I / M10-I / M12-I anchor	
C.3	Chemical anchoring with threaded bars e.g. MKT VM Multi-plus; Fischer FIS V/FIS P	- Min. bar size M8 (DIN 976), min. strength class 8.8 (PN-EN ISO 898-1)
C.4	Through-and-through fastening with threaded bars	- DIN 976 bar; the size is specified for the transmitted loads; min. strength class 8.8 (PN-EN ISO 898-1) - PN-EN ISO 4032 nut, min. strength class 8; - PN-EN ISO 7093 wide washer 200 HV;
D. SOLID MASONRY WALLS (e.g. concrete units, sand lime blocks, solid bricks) OR HOLLOW MASONRY WALLS (e.g. slotted hollow bricks, round hollow core bricks, Porotherm)		
D.1	Chemical anchoring with threaded bars e.g. MKT VM Multi-plus; Fischer FIS V/FIS P	- Min. bar size M8 (DIN 976), min. strength class 8.8 (PN-EN ISO 898-1)
D.2	Threaded anchor e.g. Fischer FBS II; Hilti HUS HR/CR	- the size and anchoring depth are specified for the transmitted loads;
D.3	Through-and-through fastening with threaded bars	- Ref. C.4 – the washers need to be replaces; - PN-EN ISO 4079 washer, 200 HV;
E. FIRE-PROOFED STEEL STRUCTURES AND FIRE STUD WALLS ¹⁾		
E.1	Steel sheet screws e.g. Hilti S-MD; Stalco WS / FD / FM; Etanco GT	- min. St 4.8 x 25 (DIN 7504); - The size is specified for the transferred loads
E.2	Threaded fastening	- PN-EN ISO 4014 / 4017 bolt; the size is specified for the transferred loads; min. strength class 8.8 (PN-EN ISO 898-1) - PN-EN ISO 4079 washer, 200 HV; - PN-EN ISO 4032 nut, min. strength class 8;

1) – The inner steel profiles must withstand the static and dynamic loads of the fire protection curtain installation and operation.



LIST OF ANCHORING FASTENERS FOR THE GUIDE RAILS²⁾

F. RF WALLS, CELLULAR CONCRETE MASONRY WALLS, AND HOLLOW OR SOLID MASONRY WALLS		
F.1	Steel wall plug (frame anchor)	- M8; M10; - Min. length 72 mm;
F.2	Plastic frame anchor plug, Hilti HRD-CR	- Size 8; 10 - Min. length 60 mm;

2) – All hardware listed in B, C, D, and E may also be used.

6.1 CURTAIN SHEET

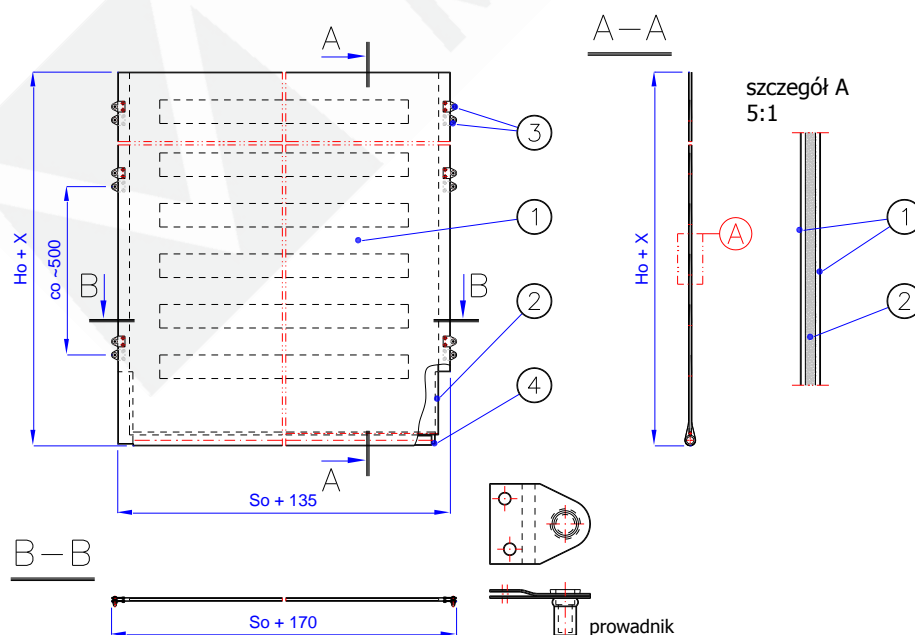
The curtain sheet is the primary component of the fire protection window curtain. When closed (unwound from the shaft), it forms a sealed, integral partition with the fire resistance rating of EI60. The curtain sheet consists of three layers, with two identical outer layers approximately 1.5 mm thick, type FM1D, and the core layer approximately 6 mm thick, type MH-6. The total curtain sheet thickness is approx. 10 mm. The top edge of the curtain sheet is attached to the winding shaft with steel self-drilling screws. Inside the bonded materials of the curtain sheet and along the entire clear opening width plus 35 mm from each side edge is a counterweight unit made from a dia. 30 mm steel bar.

The vertical edges of the curtain sheet carry running shoes made of M6 x 20 rivet nuts and mounting plates which run inside of the guide rail profiles.

Curtain sheet specifications

Specification	U.m.	Value	Notes
Width / height / thickness	mm	$So^{1)} + 135 / Ho^{2)} + 525 / 10$	-
Colour	-	grey, similar to RAL 7035	-
Quantity	pcs.	1	-
Total weight	kg / m ²	6.5	-

1) – Door (construction partition) clear opening width; 2) – Door clear height


Fig. 6 – MARC-Ok(st)60-01.01.00 [Curtain sheet]

1 – Outer layer; 2 – Core layer; 3 – Running shoe; 4 – Counterweight bar



Szczegół A	Detail A
przewodnik	Running shoe

Curtain sheet: list of components

#	Designation	Fig.	Replacement / Repair			Notes
			U ¹⁾	A ²⁾	P ³⁾	
1	Outer layer	2	-	-	YES	-
2	Outer layer	1	-	-	YES	-
3	Running shoe	2*	-	YES	YES	* - per each side, ca. every 500 mm
4	Counterweight bar	1	-	YES	YES	-

1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

CAUTION! If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.

6.2 WINDING SHAFT

The curtain sheet is fastened to the winding shaft. The shaft rotates in either direction to wind or unwind and this open or close the fire protection curtain, respectively. The winding shaft is a steel tube sized 88.9 x 3.6.

One end of the shaft ends with a neck to be fitted in an UCF series self-aligning bearing bolted to the shaft bracket. The other end of the shaft has the spring-loaded winding gear installed. When the curtain sheet is unwound in the closing direction, the winding gear spring becomes loaded to assist in winding the curtain sheet again.

Winding shaft specifications

Specification	U.m.	Value	Notes
Length (shaft tube)	mm	So ¹⁾ + 80	-
Diameter	mm	88.9	-
Quantity	pcs.	1	-
Total weight	kg/m	8.5	-

1) – Door (partition) clear width

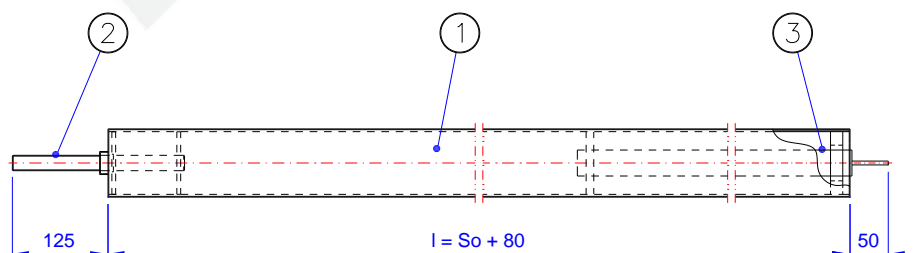


Fig. 7 – MARC-Ok(st)60-01.02.00 [Winding shaft]

1 – Shaft tube; 2 – Neck; 3 – Spring-loaded winding gear



Winding shaft: list of components

#	Designation	Fig.	Replacement / Repair			Notes
			U ¹⁾	A ²⁾	P ³⁾	
1	Shaft tube	1	-	YES	YES	-
2	Neck	1	-	-	YES	-
3	Spring-loaded winding gear	1	-	YES	YES	-

1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

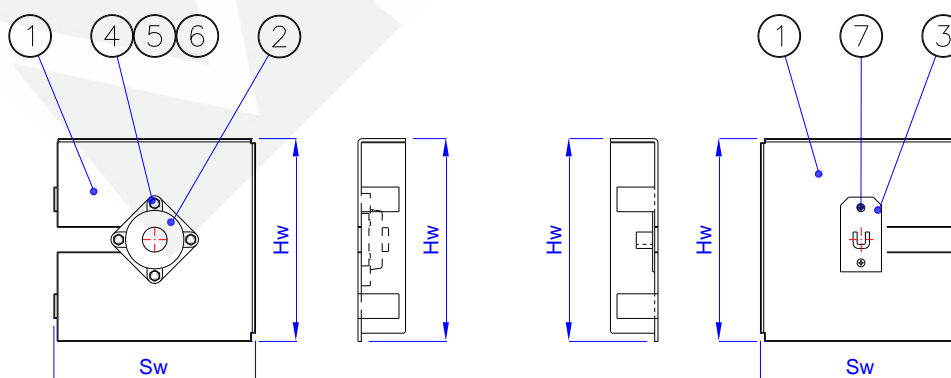
CAUTION! If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.

6.3 SHAFT BRACKET

The shaft brackets are the mounts for the winding shaft to the wall or the separating floor underside and supports for the fascia guard assembly. The MARC-Ok(st) fire protection curtain includes two shaft brackets made of 4.0 mm thick galvanized steel PN-EN 10346:2015-09 grade DX51D+Z275. The UCF self-adjusting bearing in a cast iron mount is attached to the non-driven end with washers and bolts. The driven end has the spring-loaded winding gear mount attached with bolts and washers to the shaft bracket. The type of anchoring fasteners depends on the material/type of the installation surface. See the table on p. 10 for the list of anchoring fasteners.

Shaft bracket specifications

Specification	U.m.	Value	Notes
Width / height	mm	250 x 250 / 300 x 300	Depends on the door size
Thickness	mm	58	-
Quantity	pcs.	2	-
Total weight	kg / piece	2.30 – 3.15	Depends on the bracket size


Fig. 8 – MARC-Ok(st)60-01.03.00 [Shaft brackets]

 1 – Shaft bracket plate; 2 – Self-adjusting bearing; 3 – Spring-loaded winding gear mount;
 4 – M10x30 bolt; 5 – M10 bolt; 6 – 10.2 mm spring washer; 7 – M5x10 bolt


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Shaft bracket: list of components

#	Designation	Fig.	Replacement / Repair			Notes
			U ¹⁾	A ²⁾	P ³⁾	
1	Shaft bracket plate	2	-	YES	YES	-
2	UCF self-adjusting bearing	1	-	YES	YES	For the NDE bracket only
3	Spring-loaded winding gear mount	1	-	YES	YES	For the DE bracket only
4	M10 x 30 hex head bolt	4	YES	YES	YES	PN-EN ISO 4017 / DIN 933, class 8.8
5	M10 hex nut	4	YES	YES	YES	PN-EN ISO 4032, class 8
6	10.2 mm spring washer	4	YES	YES	YES	DIN 127
7	M5 x 10 countersunk bolt	2	YES	YES	YES	PN-EN ISO 2009, class 8.8

1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

CAUTION! If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.

6.4 GUIDE RAIL

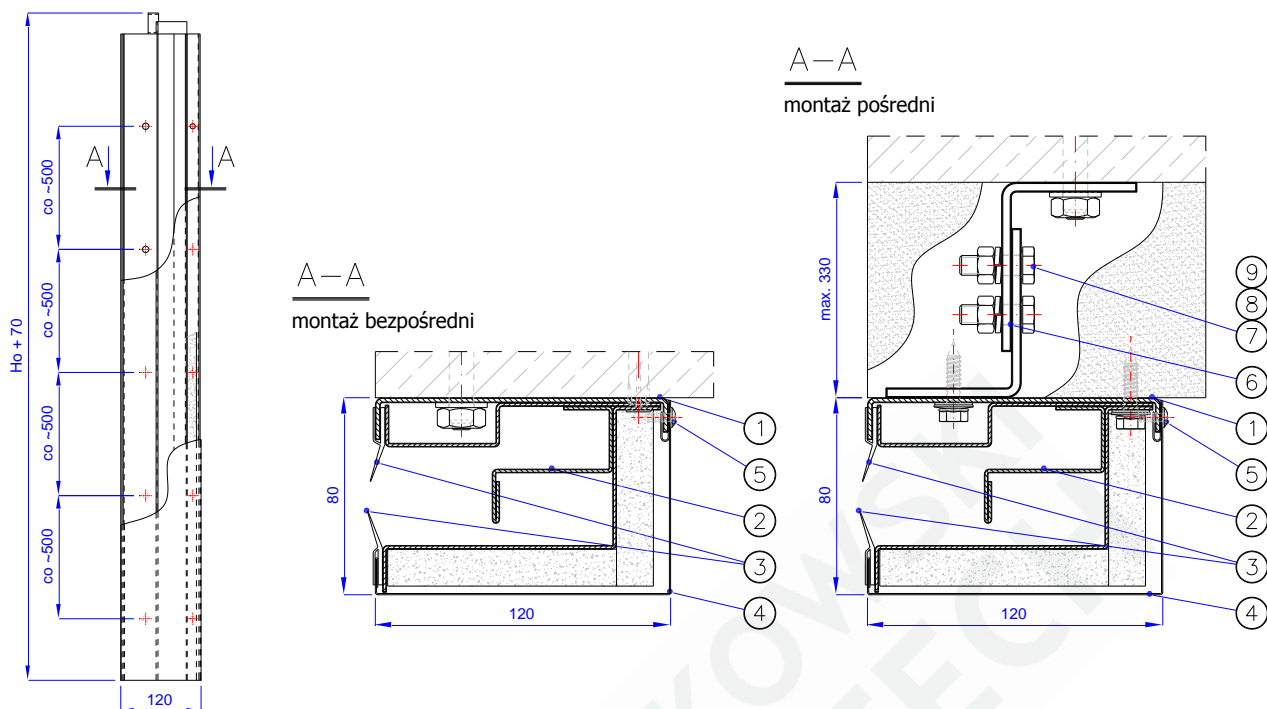
The guide rails (both of them) ensure proper alignment and true running of the fire protection curtain sheet within the wall opening. The cross-sectional size is 80 x 120 mm. The wall-side and middle sections are made of 1.5 and 2.0 mm thick galvanized steel sheet, PN-EN 10346:2015-09 grade DX51D+Z275, lined with 10 and 20 mm thick fire-proof panels. The guide rail fascia is made from 0.7 mm galvanized steel sheet. The edges of the guide rail recess has EPDM fascia gaskets installed. The type of anchoring elements depends on the material/type of the installation surface. See the table on p. 10 for the list of anchoring fasteners.

Guide rail specifications

Specification	U.m.	Value	Notes
Length	mm	Ho ¹⁾ + 70	-
Width / thickness	mm	120 x 80	-
Colour	-	Galvanized / Any in the RAL palette on request	Standard colours: RAL 7035, 9010, 9002
Quantity	pcs.	2	-
Total weight	kg/m	11.15	-

1) – Door (partition) clear height




Fig. 9 – MARC-Ok(st)60-01.04.00 [Guide rail]

 1 – Wall-side section; 2 – Middle section; 3 – Fascia gasket; 4 – Fascia; 5 – 4.2x19 self-drilling screw;
 6 – Offset bracket; 7 – M10x30 bolt; 8 – 10.2 mm spring washer; 9 – M10 hex nut

Montaż bezpośredni	Direct wall-mounted installation
Montaż pośredni	Indirect installation

Guide rail: list of components

#	Designation	Fig.	Replacement / Repair			Notes
			U ¹⁾	A ²⁾	P ³⁾	
1	Wall-side section	1	-	YES	YES	-
2	Middle section	1	-	YES	YES	-
3	Fascia gasket	2	-	YES	YES	Length equal to the guide rail length
4	Fascia	1	-	YES	YES	-
5	4.2x19 mm self-drilling screw	1*	-	YES	YES	* - Ca. every 500 mm; DIN 7504 T
6	Offset bracket	1*	-	YES	YES	* - Every 1000 mm, for indirect installation only
7	M10 x 30 hex head bolt	2*	-	YES	YES	* - Every 1000 mm, PN-EN ISO 4017/ DIN 933, class 8.8
8	10.2 mm spring washer	2*	-	YES	YES	* - Every 1000 mm; DIN 127
9	M10 hex nut	2*	-	YES	YES	* - Every 1000 mm, PN-EN ISO 4032, class 8

1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

CAUTION! If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.



6.5 FASCIA ASSEMBLY

The fascia assembly provides an aesthetic finish and fire protection; it also protects and guards the winding shaft, its brackets, and the curtain sheet.

The fascia assembly includes the rear cover with the curtain sheet sliding profile, the front fascia, the retaining slat, and two side guards. All parts are made from 0.7 to 1.0 mm thick galvanized steel sheet, PN-EN 10346:2015-09 grade DX51D+Z225.

The bottom of the front fascia connects to the retaining slat made of the same grade of steel sheet and 2.0 mm thick.

The parts of the fascia assembly are interconnected and fastened to the shaft brackets by steel self-drilling screws or steel blind rivets.

For the outdoor installation of the fire protection curtain, a drip cap is added made of the same grade of sheet steel as other components of the product.

Fascia assembly specifications

Specification	U.m.	Value	Notes
Height / width	mm	250 x 250 / 300 x 300	Depends on the door size
Length	mm	So ¹⁾ + 350 So ¹⁾ + 240	Depends on the product version
Colour	-	Galvanized / Any in the RAL palette on request	Standard colours: RAL 7035, 9010, 9002
Quantity	sets	1	-
Total weight	kg/m	13 - 16	Depends on the door size

1) – Door (partition) clear width

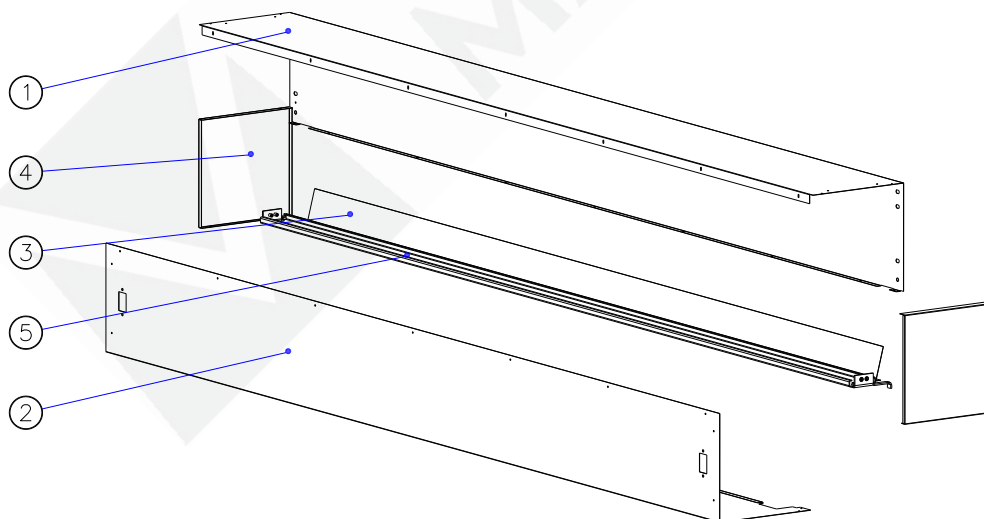


Fig. 10 – MARC-Ok(st)60-01.05.00 [Fascia assembly]

1 – Rear cover; 2 – Front fascia; 3 – Sliding profile; 4 – Side guard; 5 – Retaining slat



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Fascia assembly: list of components

#	Designation	Fig.	Replacement / Repair			Notes
			U ¹⁾	A ²⁾	P ³⁾	
1	Rear cover	1	-	YES	YES	-
2	Front fascia	1	-	YES	YES	-
3	Sliding profile	1	-	YES	YES	-
4	Side guard	2	-	YES	YES	-
5	Retaining slat	1	-	YES	YES	-

1) – Done by the user, 2) – Done by the authorized service, 3) – Done by the manufacturer

CAUTION! If the parts to be serviced by manufacturer only is replaced by anyone else, it will immediately void the CE marking of the product and the product's performance, including the fire resistance rating.

7. TROUBLESHOOTING

Every failure of the fire protection curtain shall be reported to the manufacturer and removed by authorized personnel strictly as instructed by the manufacturer (ref. Section 8 INSPECTION, MAINTENANCE, AND REPAIRS).

Fault type	Fault cause(s) / operating error	Remedy by operators
Curtain sheet does not unwind	Guide rails obstructed or damaged	Call the Technical Service to clear or replace the guide rails
	Structural component damage	Call the Technical Service to repair or replace the failed part(s)
	Thermal fusible trip failure	
	Counterweight profile out of the curtain sheet	Insert the counterweight profile into the pocket of the curtain
Curtain sheet does not wind	Guide rails obstructed or damaged	Call the Technical Service to clear or replace the guide rails
	Failed spring of the spring-loaded winding gear	Call the Technical Service to repair or replace the failed part(s)
	Spring-loaded winding gear parts loose	

8. INSPECTION, MAINTENANCE, AND REPAIRS

Given that the product does not feature a control system, ref. the Polish Regulation of the Ministry of the Interior and Administration dated 07 June 2010, (g), no mandatory service inspection or maintenance is provided for the MARC-Ok(st) fire protection window curtain, but they are recommended always when the product user has doubts concerning proper performance.



8.1 REPLACEMENT PARTS

Order the replacement parts by specifying the production year of the fire protection window curtain and the part numbers, designations, and quantity.

ALL REPLACEMENT PARTS USED FOR INSPECTION, MAINTENANCE, REPAIRS, AND OVERHAULS SHALL BE GENUINE SPARE PARTS SPECIFIED BY THE MANUFACTURER IN THE LISTS OF COMPONENTS AND PARTS IN SECTION 6 TECHNICAL SPECIFICATIONS OF THIS MANUAL.

9. DISPOSAL

Dispose of the fire protection curtain and all its worn out parts in compliance with applicable regulations of law.

When the fire protection curtain or any of its parts reaches its end of life and requires dismantling and disposal:

- Remove the product components and electrical system by performing the assembly and installation in the reverse order, and follow by handing over the parts for waste recovery.
- Hand over all plastic, rubber, and mineral wool parts for disposal.
- Cut and scrap the steel structure, metal sheets, profiles, bars and other hardware with all other steel parts (including anchors, plugs, and bolts).

9.1 CHEMICAL NOTICE

None of the fire protection window curtain components contains asbestos or coatings or elements which release any gases harmful to the ozone layer. The pigments and anti-corrosive treatment of the structure and components are free of cadmium, chromium and other air and soil aquifer layer pollutants.



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10. IDENTIFICATION

Type MARC-Ok(st) fire protection window curtain is identified with the nameplate the specimen of which is shown below. The parameters of the delivered fire protection window curtain are featured on the nameplate.



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 MAŁKOWSKI MARTECH MAŁKOWSKI-MARTECH S.A. Czołowo ul. Leśna 57 62-035 Kórnik 20 Declaration of Performance No. / CPR / MARC-Ok / 2020 - PL
EN 16034:2014 Fire protection window curtain MARC®-Ok EI60 Intended use: Installation in fire partitions Fire resistance: EI ₁₄₅ , EI ₂₆₀ , EW ₁₂₀ Ability to release: Released Self-closing rating: C Ability to release durability: Sustained release Self-closing durability related to degradation: Use category: 1 Self-closing durability related to weathering (corrosion) Achieved EN 13241:2003+A2:2016 Resistance to wind load: Class ...
Serial number: / 20.....

Fig. 11 – Specimen of the nameplate of the fire protection window curtain (ref. EN 16034:2014-11)

The nameplate is factory affixed on the bottom shaft box guard, right-hand side, at the guard rail.



11. APPENDICES

- Warranty Certificate (SPECIMEN)
- Copy of the Declaration of Performance
- Available to the manufacturer-issued Installation Authorization Certificate holders:
 - Type MARC-Ok(st) EI60 fire protection window curtain installation manual;



PERIODIC INSPECTION AND MAINTENANCE LOG

Equipment type:	Serial number:	Year of production:
-----------------	----------------	---------------------

#	Completed servicing	Date & authorized stamp and signature	Notes
1			
2			
3			
4			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			



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WARRANTY CERTIFICATE

Warranty issued to the Buyer / Warranty Rights Owner*:		Installation location*:		
Warranty period*:		Ref. Contract/P.O. No.*:		
#	Sold product	Additional description*:	Identification no.*:	Quantity (pcs)*:
1	Fire protection window curtain, MARC–Ok(st) EI60	EI260		

§ 1

Shipping; acceptance; pre-installation work

1. The quantity acceptance of the product is done prior to outbound shipping and at the site of MAŁKOWSKI-MARTECH S.A. (hereinafter, the GUARANTOR). The signature of the Installer/Buyer on the Goods Issue Note provided with the sold product certifies that the product is complete and conforms with the specifications in the Goods Issue Note.
2. Before the product is assembled/installed, the Installer shall carefully verify that the product has not been damaged in transport, remains of full value, and conforms to the purchase order submitted by the Buyer. If the product is found not to be conformity with the purchase order and/or any defect is found in the product, do not proceed with the assembly and installation process; immediately notify the Guarantor.
3. If the product's defect(s) could have been reasonably found with due diligence prior to the assembly and installation process, all WARRANTY CLAIMS for the defect(s) submitted once the product is assembled and installed will be rejected without examination.

§ 2

General warranty terms and conditions

1. The Warranty Rights Owner will retain its warranty rights provided that:
 - a) The sold product is assembled and installed by the Guarantor or a contractor who holds the Installation Authorization Certificate (issued by the Guarantor), and the assembly and installation process is certified with the relevant entry on the last page of this Warranty Certificate;
 - b) Periodic service inspections are ordered (pursuant to a separate service contract) for the product under this Warranty and to be performed by the Guarantor or the (manufacturer's) Service Authorization Certificate holder according to this schedule:
 - Every 6 months – when the product remains in its fully closed or open position without cyclic operation;
 - Every 3 months – when the product is operated in any way different than above and in compliance with the criteria established by the Guarantor in the service contract;
2. These warranty terms and conditions apply to the product sold by the Guarantor and purchased, assembled, and installed in the Republic of Poland.
3. The service inspections specified in § 2.1 above are payable.
4. Within 14 days after each service inspection completed by the Service Authorization Certificate holder, the Warranty Rights Owner shall provide the copies of the service inspection certificates to the Guarantor:
 - a) by e-mail at serwis@malkowski.pl, and
 - b) to the Guarantor's registered office address, or the warranty rights will be made void.
5. The warranty period begins on the date of certified post-assembly and installation acceptance of the product.
6. The rights granted under this Warranty do not include the right to claim damages for lost profits or compensation for any damage related to the failure of the product, except for the rights granted under this Warranty.



§ 3**Procedure of warranty claims and exercise of warranty rights**

1. The Warranty Rights Owner is required to report each defect discovered in the product, which shall be done in writing and in 14 days after the discovery.
2. Each warranty claim shall be submitted to the Guarantor in writing or be null and void.
3. Each warranty claim submission shall include:
 - a) a copy of the Warranty Certificate;
 - b) A detailed account of the discovered defects, its causes, and conditions in which they have emerged;
 - c) The product serial number;
 - d) Proof of completion of the periodic service inspections of the product as specified in § 2.4.
4. To ensure smooth warranty claim processing, it is recommended to attach photographic evidence of the defective product to facilitate examination.
5. The Warranty Rights Owner shall provide all conditions required for and facilitating repair of the claimed product (especially by permitting access to the product and removal from service of all equipment which can be hazardous to the personnel removing the claimed defects).
6. Failure to submit a warranty claim by the time specified in § 3.1 will release the Guarantor from the obligation of processing the warranty claim.

§ 4**Warranty rights**

1. If the warranty claim made under the Warranty is reasonable, the Guarantor shall, at its own discretion, remove the defects of the product (by repairing it) or replace the product (or its affected part) with a new counterpart.
2. The title of the replaced defective products will become property of the Guarantor.
3. If defects or failures are discovered during the warranty period and prevent use of the product, the Guarantor shall act as reasonably required to remove the defects or failures in 10 business days from the date of claim.
4. If defects or failures are discovered during the warranty period and DO NOT prevent use of the product, the Guarantor shall act as reasonably required to remove the defects or failures in 20 business days from the date of claim.
5. The time limits specified in § 4.3 and § 4.4 can be extended due to reasonably important causes, especially whenever:
 - a) the parts necessary for the execution of the warranty rights are not available on the market;
 - b) it is necessary to import some or all parts from abroad to process the warranty claim;
 - c) reasons beyond any control of the Guarantor arise, of which the Warranty Rights Holder will be advised.
6. Business days shall be understood as days from Monday to Friday, excluding holidays and other statutory work-free days.
7. If, in the performance of its obligations, the Guarantor supplies the Warranty Rights Holder with an item free of defects instead of a defective item, or has made significant repairs of an item on warranty, the warranty period for the item shall run again from the date of delivery of the item free of defects or the return of the repaired item to the Warranty Rights Holder.
8. The warranty for the replaced items shall start again from the date of delivery of the item free of defects or repaired, with respect to the replaced item.
9. The replacement of parts/items shall not result in extension of the warranty period for the whole product sold.
10. The Guarantor is entitled to charge the Warranty Rights Holder with the costs of an unreasonable warranty claim (which is unreasonable if the claimed defect does not exist or the claim features a request for remedying a defect not covered by this Warranty).
11. The costs referred to in § 4.10 specifically include the costs of service travel to the product's site and the costs of removal of the defects, if any.
12. The costs of defect removal not covered by this Warranty will be evaluated according to the price list of the Guarantor.



§ 5**Exclusion of warranty rights**

This Warranty does not cover:

1. any defects caused by anything not in the sold product;
2. defects caused by any tampering with the sold product by the Warranty Rights Owner or a third party, especially alterations and modifications without prior written authorisation of the Guarantor; if the sold product is tampered with, the WARRANTY AND THE DECLARATION OF PERFORMANCE ARE VOID;
3. defects caused by misuse / non-intended use of the product or failure in routine maintenance of the product, especially any use or maintenance in deviation from the manuals of the product to which this Warranty Certificate is attached;
4. defects resulting from assembly or repairs performed by personnel not authorized by the Guarantor;
5. the product installed on a site under this Warranty with failure to provide service inspections by the Guarantor or the Service Authorisation Certificate;
6. parts of the product which are naturally worn, partially or completely, according to the properties or the intended use (these include running assembly parts, electrical batteries, etc.);
7. mechanical damage of the product and the defects resulting from it;
8. defects caused by defects of the structure in which the product has been installed;
9. incorrect selection of the product to the conditions at the installation site;
10. defective operation of the installed equipment which has not been provided by the Guarantor, and resulting in negative impact on the product. Should any of the foregoing occur, THE DECLARATION OF PERFORMANCE ISSUED FOR THE PRODUCT AND ITS WARRANTY CERTIFICATE ARE AUTOMATICALLY VOID AND NULL;
11. defects resulting from the external factors, especially fire, extreme weather, and fortuitous event;
12. damage caused by misuse of the product or its operation in deviation from the operating manuals, which also includes operation beyond the maximum performance limits;
13. use of non-genuine spare parts, which are parts not original to the Guarantor;
14. the product sold if this Warranty Certificate is redacted or defaced in any way;
15. the product sold if its nameplate is removed, damaged, or modified;
16. the product with its warranty seal is damaged or removed.

.....
Date and signature of the Guarantor's Installation Authorisation Certificate Holder

.....
Authorization no. and date of issue

